

State Protected Species List

Scientific Name	Common Name	State Rank	Federal Status
<i>Accipiter striatus</i>	Sharp-shinned hawk	S1?B,SZN	
<i>Acipenser oxyrinchus desotoi</i>	Gulf sturgeon	S1	T
<i>Aimophila aestivalis</i>	Bachman's sparrow	S3?B,SZN	
<i>Anas fulvigula</i>	Mottled duck	S3B,S4N	
<i>Caretta caretta</i>	Loggerhead	S1B,SZN	T
<i>Chardrius melodus</i>	Piping plover	SZN	T
<i>Coturnicops noveboracensis</i>	Yellow rail	S2N	
<i>Drymarchon corais couperi</i>	Eastern indigo snake	S1	
<i>Egretta rufescens</i>	Reddish egret	SZN	
<i>Enneacanthus gloriosus</i>	Bluespotted sunfish	S3	
<i>Falco columbarius</i>	Merlin	SZN	
<i>Fallicambarus byersi</i>	Lavender burrowing crayfish	S3	
<i>Fallicambarus danielae</i>	Speckled burrowing crayfish	S2	
<i>Fundulus jenkinsi</i>	Saltmarsh topminnow	S3	
<i>Gopherus polyphemus</i>	Gopher tortoise	S2	T
<i>Grus canadensis pulla</i>	Mississippi sandhill crane	S1	
<i>Haematopus palliatus</i>	American oystercatcher	SPB,SZN	
<i>Haliaeetus leucocephalus</i>	Bald eagle	S1B,S2N	DL
<i>Heterandria formosa</i>	Least killifish	S3	
<i>Heterodon simus</i>	Southern hognose snake	SH	
<i>Laterallus jamaicensis</i>	Black rail	S2N	
<i>Lepidochelys kempi</i>	Kemp's ridley	S1N	E
<i>Macrochelys temminckii</i>	Alligator snapping turtle	S3	
<i>Malaclemys terrapin pileata</i>	Mississippi diamondback terrapin	S2	
<i>Nerodia clarkii clarkii</i>	Gulf salt marsh snake	S2?	
<i>Notropis chalybaeus</i>	ironcolor shiner	S2	
<i>Nycticorax nycticorax</i>	Black-crowned night heron	S3?B,SZN	
<i>Onthophagus polyphemi</i>	tortoise commensal scarab beetle	S?	
<i>Pandion haliaetus</i>	Osprey	S3B,SZN	
<i>Pelecanus erythrorhynchos</i>	American white pelican	S2N	
<i>Pelecanus occidentalis</i>	Brown pelican	S1N	E
<i>Peromyscus polionotus</i>	Oldfield mouse	S2S3	
<i>Picoides borealis</i>	Red-cockaded woodpecker	S1	E
<i>Pituophis melanoleucus lodingi</i>	Black pine snake	S2	C
<i>Procambarus fitzpatricki</i>	Spiny tailed crayfish	S2	
<i>Pseudemys sp.</i>	Mississippi redbelly turtle	S1	
<i>Pseudotriton montanus</i>	Mud salamander	S2S3	
<i>Rana heckscheri</i>	River frog	S1	
<i>Rana sevosa</i>	Dark gopher frog	S1	
<i>Regina rigida sinicola</i>	Gulf crayfish snake	S3?	
<i>Rhadinaea flavilata</i>	Pine woods snake	S3?	
<i>Sterna antillarum</i>	Least tern	S3B,SZN	
<i>Sterna maxima</i>	Royal tern	S1B,S4N	
<i>Thryomanes bewickii</i>	Bewick's wren	S2S3B,SZN	
<i>Trichechus manatus</i>	Manatee	SZ	
<i>Agalinis aphylla</i>	Coastal plain false-foxglove	S2S3	
<i>Agalinis filicaulis</i>	Thin stemmed false-foxglove	S2?	
<i>Agrimonia incisa</i>	Incised groovebur	S3S4	
<i>Andropogon perangustatus</i>	Elliott's bluestem (Var.2)	S1?	

Scientific Name	Common Name	State Rank	Federal Status
<i>Aristida condensata</i>	Sandhills three awn	S3S4	
<i>Avicennia nitida</i>	Black mangrove	SH	
<i>Burmannia biflora</i>	Northern burmannia	S3S4	
<i>Calopogon barbatus</i>	Bearded grass-pink	S2S3	
<i>Carex exilis</i>	Coast sedge	S2	
<i>Chamaecrista deeringiana</i>	Florida senna	S1	
<i>Cleistes divaricata</i>	Spreading pogonia	S3	
<i>Coreopsis basalis</i>	Golden-mane tickseed	S1?	
<i>Dichantherium erectifolium</i>	Erect-leaf witchgrass	S3S4	
<i>Elyonurus tripsacoides</i>	Pan american balsamscale	SH	
<i>Epidendrum conopseum</i>	Green-fly orchid	S2	
<i>Eriocaulon texense</i>	Texas pipewort	S2S3	
<i>Gaylussacia frondosa</i>	Dangleberry	S2S3	
<i>Helianthemum arenicola</i>	Gulf rockrose	S1S2	
<i>Ilex amelanchier</i>	Juneberry holly	S3	
<i>Ilex cassine</i>	Dahoon holly	S2	
<i>Ilex myrtifolia</i>	Myrtle holly	S3S4	
<i>Ipomoea pes-caprae</i>	Railroad vine	S2S3	
<i>Isoetes louisianensis</i>	Louisiana quillwort	S2	E
<i>Juniperus silicicola</i>	Southern red cedar	S2	
<i>Lachnocaulon digynum</i>	Pineland bogbutton	S2	
<i>Lilaeopsis carolinensis</i>	Carolina lilaeopsis	S2S3	
<i>Lindera subcoriacea</i>	Bog spice bush	S2	
<i>Linum macrocarpum</i>	Large fruited flax	S2	
<i>Lycopodium cernuum</i>	Nodding clubmoss	S2	
<i>Macranthera flammea</i>	Flame flower	S3?	
<i>Melanthium virginicum</i>	Virginia bunchflower	S2S3	
<i>Mikania cordifolia</i>	Florida keys hempvine	S3S4	
<i>Panicum nudicaule</i>	Naked-stemmed panic grass	S2	
<i>Paronychia erecta</i>	Beach sand-squares	S1S2	
<i>Paspalum monostachyum</i>	Gulfdune paspalum	SU	
<i>Peltandra sagittifolia</i>	White arum	S2S3	
<i>Petalostemon gracilis</i>	Pine barrens prairie clover	S2S3	
<i>Physalis angustifolia</i>	Coast ground-cherry	S3S4	
<i>Pinguicula planifolia</i>	Chapman's butterwort	S2	
<i>Pinguicula primuliflora</i>	Southern butterwort	S3	
<i>Plantanthera blephariglottis</i>	Large white fringed orchid	S2	
<i>Plantanthera cristata</i>	Crested gringed orchid	S3	
<i>Plantanthera integra</i>	Yellow fringeless orchid	S3S4	
<i>Polanisia tenuifolia</i>	Slender-leaf clammy-weed	S1S2	
<i>Polygala hookeri</i>	Hooker's milkwort	S1S2	
<i>Quercus myrtifolia</i>	Myrtle-leaf oak	S1?	
<i>Rhynchospora macra</i>	Large beakrush	S3	
<i>Rhynchospora stenophylla</i>	Chapman beakrush	S1?	
<i>Ruellia noctiflora</i>	Night-flowering ruellia	S2	
<i>Ruellia pedunculata</i> spp <i>pinetorum</i>	Pine barren ruellia	S3	
<i>Sarracenia leucophylla</i>	Crimson pitcher-plant	S2S3	
<i>Sorghastrum apalachicolense</i>	Open indian grass	S3	
<i>Spiranthes longilabris</i>	Giant spiral ladies'-tresses	S2S3	

Scientific Name	Common Name	State Rank	Federal Status
<i>Stewartia malacodendron</i>	Silky camellia	S3S4	
<i>Stylisma aquatica</i>	Water southern morning-glory	S1	
<i>Syngonanthus flavidulus</i>	Yellow pipewort	S2?	
<i>Utricularia purpurea</i>	Purple bladderwort	S2S3	
<i>Xyris chapmanii</i>	Chapman's yellow-eyed grass	S2?	
<i>Xyris drummondii</i>	Drummond's yellow-eyed grass	S2	
<i>Xyris flabelliformis</i>	Fan-shaped yellow-eyed grass	SU	
<i>Xyris scabrifolia</i>	Harper's yellow-eyed grass	S1S2	

Source: MNHP 2008

- S1** — Critically imperiled in Mississippi because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it vulnerable to extirpation.
- S2** — Imperiled in Mississippi because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it vulnerable to extirpation.
- S3** — Rare or uncommon in Mississippi (on the order of 21 to 100 occurrences).
- S4** — Widespread, abundant, and apparently secure in the state, but with cause for long-term concern (more than 101 occurrences).
- S5** — Demonstrably widespread, abundant, and secure in the state.
- SH** — Of historical occurrence in Mississippi, perhaps not verified in the past 20 years, and suspected to be extant. An element would also be ranked SH if the only known occurrence(s) were destroyed, or if it had been sought extensively and unsuccessfully looked for. Upon verification of an extant occurrence, SH ranked elements would typically receive an S1 rank.
- SR** — Reported from the state, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.
- SU** — Possibly in peril in Mississippi but status uncertain; need more information. May also be represented by S?
- S?** — Unranked: Element is not yet ranked in the state.
- SX** — Element is believed to be extirpated from the state.
- SE** — Exotic: An exotic established in the state; may be native in nearby regions (e.g. pecans along the eastern seaboard of the U.S.)
- SA** — Accidental: accidental or casual in the state (i.e., infrequent and far outside usual range).
- SZ** — Zero occurrences in the state. Not of practical conservation concern in the state, because there are no definable occurrences, although the taxon is native and appears regularly in the state.
- SP** — Potential: Element potentially occurs in the state but no occurrences reported.
- SR** — Reported: Element reported in the state but without persuasive demonstration which would provide a basis for either accepting or rejecting (e.g. misidentified specimen) the report.
- SRF** — Reported falsely: Element erroneously reported in the state and the error has persisted in the literature.
- HYB** — Hybrid: Element represents hybrid of species.
- SSYN** — Synonym
- ?** — Inexact
- C** — Captive or Cultivated

Breeding Status: (Applicable to migratory species, mainly birds, but also includes sea turtles, some fish, and some insects).

- B** — Breeding Status
- N** — Non-breeding Status

Wetlands Technical Report

FINAL WETLANDS TECHNICAL REPORT

CANAL NO. 1 CHANNEL MODIFICATIONS LONG BEACH WATER MANAGEMENT DISTRICT HARRISON COUNTY, MISSISSIPPI

April 2009



Prepared By:

ERG

Environmental Research Group, LLC

FINAL
Wetlands Technical Report
Canal No. 1 Channel Modifications
Long Beach Water Management District
Harrison County, Mississippi

April 2009

Prepared for:
Neel-Schaffer, Inc.
and
Long Beach Water Management District

Prepared by:
Environmental Research Group, LLC
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ACRONYMS/ABBREVIATIONS

EIS	Environmental Impact Statement
ERG	Environmental Research Group, LLC
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GIS	Geographic Information System
GPS	Global Positioning System
LBWMD	Long Beach Water Management District
NSI	Neel-Schaffer, Inc.
NRCS	Natural Resources Conservation Service
OBL	Obligate Wetland
PEM	Palustrine Emergent
PFO	Palustrine Forested
POW	Palustrine Open Water
PSS	Palustrine Scrub Shrub
ROW	Right-of-Way
SEIS	Supplemental Environmental Impact Statement
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
UPL	Upland

1.0 INTRODUCTION

1.1 Background

Canal No. 1 is a man-made canal that was constructed in 1918 near Long Beach in Harrison County, Mississippi. The 4.7 mile section of Canal No. 1 proposed to be modified begins near the U.S. Navy Construction Battalion Base and continues west to Espy Avenue (Figure 1).

An Environmental Impact Statement (EIS) was conducted in 1989, encompassing work on Canal No. 1, Canal No. 2, and Canal No. 3. The improvements to Canal No. 2 and 3 have been completed. A Supplemental EIS (SEIS) is being prepared to update the EIS work previously prepared for Canal No. 1. The proposed project is needed to reduce costs and impacts to families from flood damages. The purpose of the SEIS will be to review and update current conditions of the study area and evaluate impacts from the proposed project.

The Long Beach Water Management District (LBWMD) proposes to modify the existing canal through construction of channel modifications. These modifications include structural measures to enlarge portions of the existing channel and perform selective snagging along the remainder of the channel. The proposed project consists of 3.8 miles of channel enlargement of earth-lined channel and 0.2 miles of rock riprap lined channel. The earth-lined channel will have 3 to 1 side slopes and bottom widths ranging from 30 to 40 feet. The rock riprap-lined reach is planned due to limited right-of-way (ROW) widths. Selective snagging will be performed along 0.7 miles of Canal No. 1 to remove log jams, free or affixed logs, and rooted trees in danger of falling into the channel. Hardwood species would be planted in the ROW areas along the canal and within the Long Beach Industrial Park. The channel would be constructed with 3:1 side slopes to encourage establishment of vegetation. This vegetation would reduce bank erosion and improve sediment trapping. Also, sediment traps will be placed at the lower end of the channel to reduce downstream travel of sediment during and following construction.

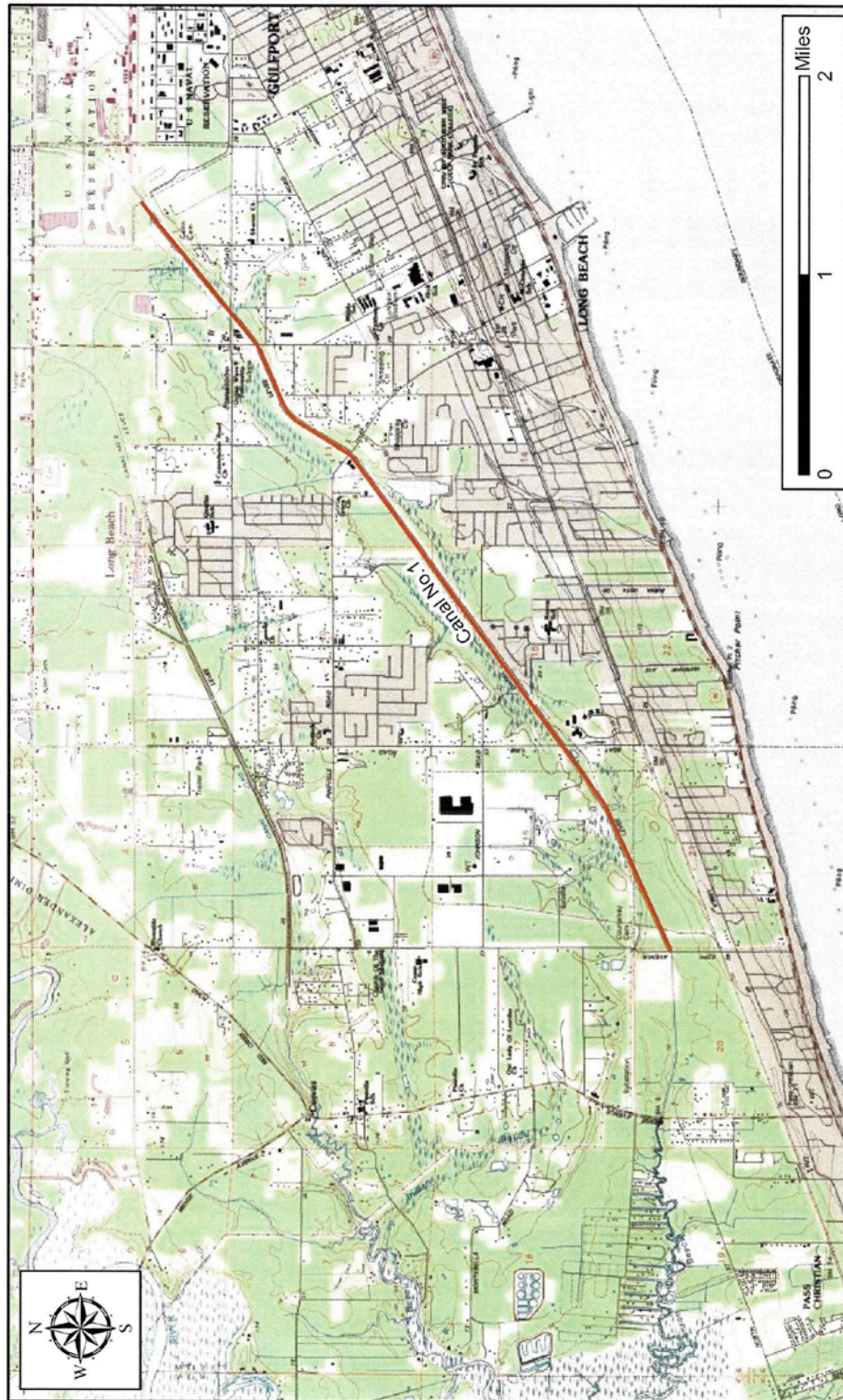
1.2 Project Objective

Environmental Research Group, LLC (ERG), a sub-consultant to Neel-Schaffer, Inc. (NSI), was tasked by the Long Beach Water Management District to provide a delineation of the jurisdictional wetlands and waters of the U.S. within the proposed project area.

1.3 Clean Water Act

The objective of the Clean Water Act is to maintain and restore the chemical, physical, and biological integrity of the waters of the U.S. Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into waters of the U.S., including deepwater habitats, special aquatic sites, and wetlands. The U.S. Army Corps of Engineers (USACE) has the authority to make decisions regarding the jurisdictional status of a wetland. Therefore, the USACE should be contacted prior to disturbance of any area investigated during this preliminary effort.

Figure 1. Canal No. 1 Channel Modification Study Area



1-2

Environmental Research Group, LLC.

Date: January 20, 2009

Potential jurisdictional wetlands were investigated utilizing the three-parameter approach for a routine on site determination as defined by the USACE (Environmental Laboratory 1987).

The USACE defines wetlands as:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

In order for an area to be considered a jurisdictional wetland by the USACE, it must have evidence of hydrophytic vegetation, hydric soils, and wetland hydrology. Under normal circumstances (site not altered in the last 5 years), the absence of any one of these three parameters results in a non-wetland determination. If disturbed conditions are present, then consideration must be given to what conditions would have been present had the disturbance not occurred.

1.4 Interim Regional Supplement

On December 17, 2008 the USACE announced by public notice the publication and one-year trial implementation period of the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region to the 1987 Wetland Delineations Manual. This supplement provides technical guidance and procedures for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. Thirty days after the public notice, the Supplemental data forms and indicators must be used for any data collection for wetland delineations. The Atlantic and Gulf Coastal Plain Region consists of all or portions of the District of Columbia and the following states: Alabama, Arkansas, Delaware, Florida, Georgia, Illinois, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, and Virginia (Environmental Laboratory, 2008).

Since the field effort for this project was collected prior to this notice using the 1987 Manual, and has not yet been submitted to the Corps it will be grandfathered. Documentation must be submitted to the Corps which shows the field data was collected prior the 30 days for the date of the public notice in order to qualify for the grandfather provision. Once documentation and field data have been reviewed and approved by the Corps, a written determination will be issued (USACE 2008).

2.0 METHODS

ERG biologists conducted a preliminary investigation with on-site inspections along 4.7 miles of Canal No. 1 and a 125-foot wide corridor on each side of the existing canal on October 13-16, 2008. The limits of the wetlands and waters of the U.S. identified in this report were mapped using a Trimble GeoXH global positioning system (GPS) unit and the data was input into a geographic information system (GIS) program for analysis. Photographs of the project area are located in Appendix A, plant species observed are located in Appendix B, and data sheets of the wetlands are located in Appendix C.

An ERG biologist met with Mr. John McFadden of the USACE, Mobile District on March 23, 2009 to verify our findings. Mr. McFadden recommended a couple of changes to the original delineation. ERG biologists revisited the proposed project area on April 22, 2009 to evaluate the USACE recommendations. Changes were made and have been incorporated in this report.

Plant communities and dominant plant species were identified to determine the presence of hydrophytic vegetation. The National List of Plant Species that Occur in Wetlands (Reed 1988) was used to determine the indicator status of dominant plant species. Plants were classified as obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL) species. Hydrophytic vegetation is prevalent in an area when the dominant species comprising the plant community or communities are typically adapted for life in saturated soil conditions (Environmental Laboratory 1987).

Wetland hydrology was determined by on-site visual observation of geomorphic and hydrologic characteristics including inundation, saturation, water marks, drift lines, drainage patterns, oxidized root channels, and water stained leaves. Additionally, soil pits were dug to determine if soil saturation was present in non-inundated areas at the time of the survey.

Soil profiles were examined for hydric soil indicators to determine if hydric soils were present. Additional soils information was taken from the Soil Survey of Harrison County, Mississippi (U.S. Department of Agriculture 1975). A list of hydric soils in the area was obtained from the local Natural Resources Conservation Service (NRCS) office.

3.0 RESULTS

ERG Biologists conducted a field investigation on October 13-16, 2008. The study area included 4.7 miles of the existing canal and a 125-foot wide corridor on each side of the existing canal.

3.1 Vegetation

Vegetational characteristics of the proposed project area vary according to landscape position. The undeveloped areas include upland mixed forest or maintained pasture. Vegetation near the canal is typically mature upland hardwood/pine forest with a dense shrub layer. The study area has many downed trees most likely a result of Hurricane Katrina. Paralleling the canal is a maintained electrical power line right-of-way (ROW) that consists of herbaceous species.

Vegetation along the canal is characterized by a community dominated by mature upland hardwoods with scattered pines and a dense shrub layer. This community consists of mature and immature water oak (*Quercus nigra*), willow oak (*Quercus phellos*), southern red oak (*Quercus falcata*), sweetgum (*Liquidambar styraciflua*), live oak (*Quercus virginiana*), magnolia bay (*Magnolia virginiana*), Chinese tallow (*Triadica sebifera*), red maple (*Acer rubrum*), persimmon (*Diospyros virginiana*), blackgum (*Nyssa sylvatica*), loblolly pine (*Pinus taeda*), and black willow (*Salix nigra*). Chinese privet (*Ligustrum sinense*) and devils walking stick (*Aralia spinosa*) exist throughout the shrub layer, and peppervine (*Ampelopsis arborea*), roundleaf greenbrier (*Smilax rotundifolia*) and blackberry (*Rubus* spp.) are common vines mixed throughout.

Common rush (*Juncus effusus*), smartweed (*Polygonum* spp.), bushy bluestem (*Andropogon glomeratus*), eastern baccharis (*Baccharis halimifolia*), titi (*Cyrilla racemiflora*), beaked rush (*Rhynchospora corniculata*), and St. Johnswort (*Hypericum cistifolium*), Alligator weed (*Alternanthera philoxeroides*), and arrowhead (*Sagittaria* sp.) are commonly found along the edge of the canal and in wetland areas.

Vasey's grass (*Paspalum urvillei*), dallisgrass (*Paspalum dilatatum*), dogfennel (*Eupatorium capillifolium*), goldenrod (*Solidago altissima*), giant goldenrod (*Solidago gigantea*), pokeweed (*Phytolacca americana*), cogon grass (*Imperata cylindrica*), wax myrtle (*Morella cerifera*), little bluestem (*Schizachyrium scoparium*), and Bermuda grass (*Cynodon dactylon*) were noted within the power line ROW and in maintained pastures.

Sample Plots A, B, C, D, E, and U1 support hydrophytic vegetation (Appendix C). Hydrophytic vegetation is prevalent when more than 50 percent of the dominant species at a sample plot are OBL, FACW, or FAC.

3.2 Soils

The NRCS Soil Survey for Harrison County was reviewed to determine general soil types found within the proposed alignment (USDA 1975). A list of hydric soils in the area was obtained from the local Natural Resources Conservation Service (NRCS) office. Hydric soils within the corridor include: Atmore silt loam (At), Hyde silt loam (Hy), Plummer loamy sand (Pm), and Ponzer and Smithton soils (Pa). A hydric soil is defined as a soil that is formed under conditions of saturation, flooding, or ponding long enough

during the growing season to develop anaerobic conditions in the upper part (Environmental Laboratory, 1987). Low-chroma color, an indicator of hydric soils, was observed at all Sample Plots.

3.3 Hydrology

Hydrology throughout the project corridor has been influenced by residential and commercial development resulting in localized modifications to drainage patterns. Hydrology indicators observed in the project corridor included inundation, saturation in the upper twelve inches, drainage patterns in wetlands, oxidized root channels in the upper 12 inches, and water-stained leaves. Sample Plots A, B, C, D, and E showed indications of hydrology. Indicators observed included inundation, saturation in the upper 12 inches, drainage patterns, sediment deposits, water-stained leaves, and oxidized root channels in the upper 12 inches. Plots U1 and U2 showed no indications of hydrology (Appendix C).

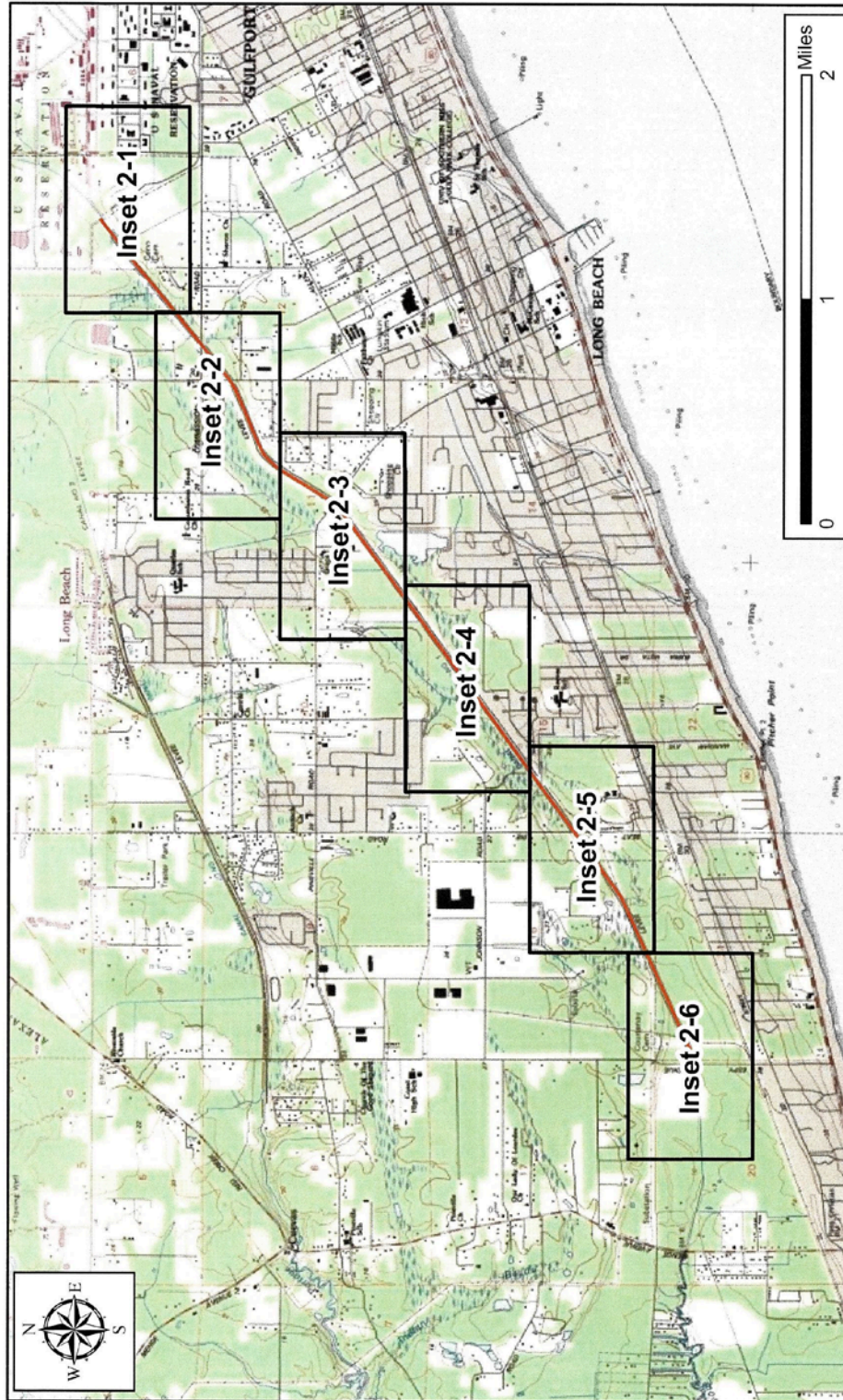
3.4 Jurisdictional Areas Affected

The proposed project would have direct impacts to jurisdictional wetlands and waters of the U.S. Based on our observations, potential jurisdictional areas that would be affected by the proposed project total 2.72 acres of wetlands, 2.89 acres of ponds, 4.56 miles of Canal No. 1, and 3,647 linear feet (0.7 miles) of ditches (Figure 2-1 thru 2-6). A summary of potential jurisdictional features identified within the study area are presented in Table 1.

Table 1.
Potential Jurisdictional Features Identified within the Study Area

FEATURE	POTENTIAL IMPACTS		
	Waters	Wetlands	Open Water
Canal No. 1	4.56 miles (24,062 feet)		
Ditches	0.7 miles (3,647 feet)		
Ponds			2.89 acres
Wetlands		2.72 acres	
Total	5.26 miles (27,709 feet)	2.72 acres	2.89 acres

Figure 2. Index Map



3-3

Date: January 7, 2009

Environmental Research Group, LLC.

Figure 2-1. Potential Jurisdictional Features within the Study Area



3-4

Environmental Research Group, LLC.

Date: January 7, 2009

Figure 2-2. Potential Jurisdictional Features within the Study Area



3-5

Date: January 7, 2009

Environmental Research Group, LLC.

Figure 2-3. Potential Jurisdictional Features within the Study Area



3-6

Date: April 23, 2009

Environmental Research Group, LLC.

Figure 2-4. Potential Jurisdictional Features within the Study Area



3-7

Date: April 23, 2009

Environmental Research Group, LLC.

Figure 2-5. Potential Jurisdictional Features within the Study Area

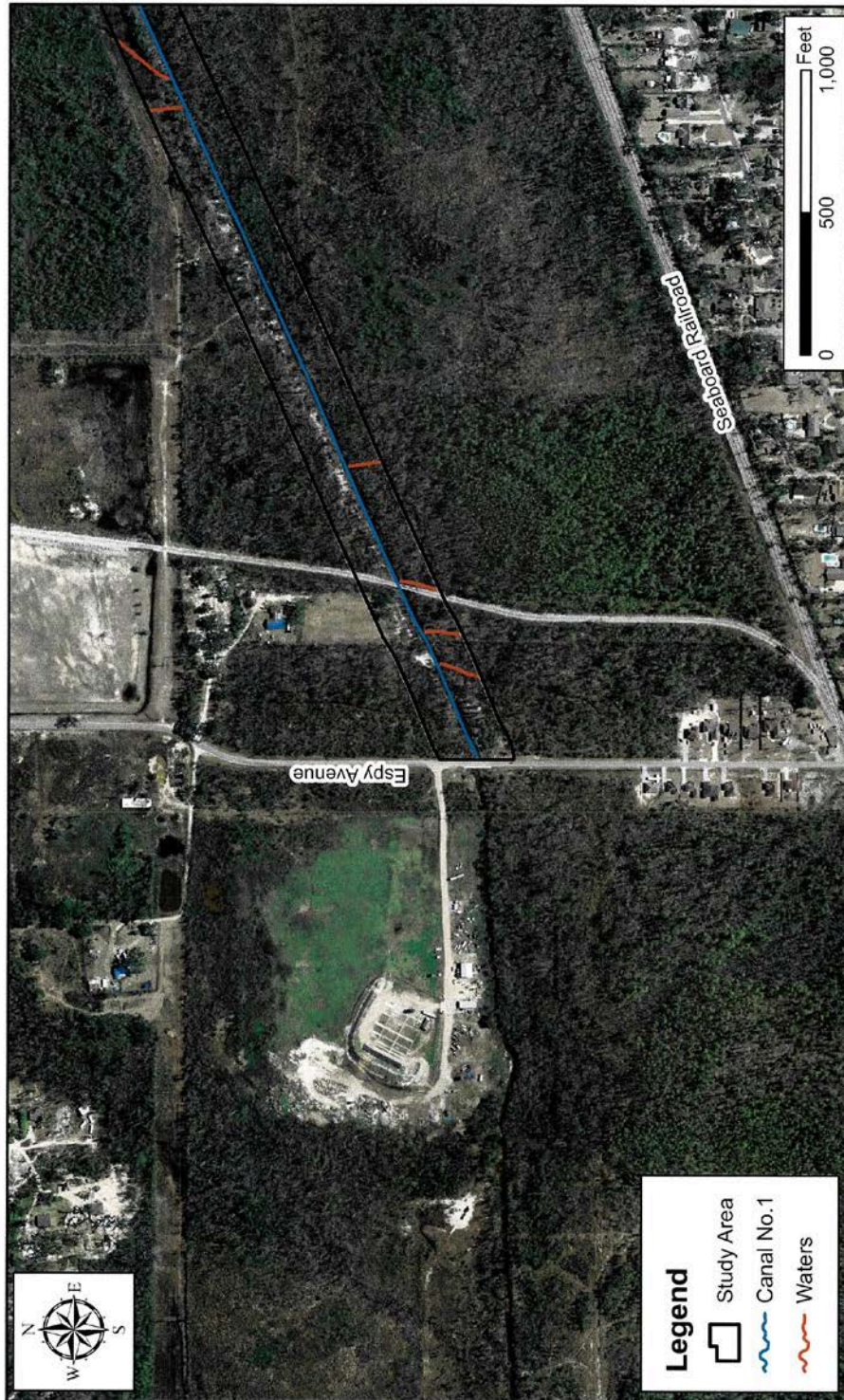


3-8

Date: January 7, 2009

Environmental Research Group, LLC.

Figure 2-6. Potential Jurisdictional Features within the Study Area



3-9

Environmental Research Group, LLC.

Date: January 7, 2009

4.0 SUMMARY

Potential jurisdictional wetlands and waters of the U.S. have been identified within the proposed corridor. ERG biologists conducted a preliminary investigation with on-site inspections along 4.7 miles of Canal No. 1 and a 125-foot wide corridor on each side of the existing canal on October 13-16, 2008. An ERG biologist met with Mr. John McFadden of the USACE, Mobile District on March 23, 2009 to verify our findings. Mr. McFadden recommended a couple of changes to the original delineation. ERG biologists revisited the proposed project area on April 22, 2009 to evaluate the USACE recommendations. Changes were made and have been incorporated in this report.

A total of 2.72 acres of jurisdictional wetlands, 2.89 acres of ponds, and 5.26 miles of waters of the U.S. were identified within the project area. Any changes or additions to the study corridors would need to be reevaluated as necessary.

The USACE has the authority to make the final decision regarding the jurisdictional status of wetlands and waters of the U.S. NSI should review this report. Once approved internally, NSI should submit this report to the USACE for their concurrence and to determine the appropriate permit requirements prior to the disturbance of any jurisdictional areas.

5.0 REFERENCES CITED

- Environmental Laboratory. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region. ERDC/EL TR-08-30. US Army Corp of Engineers Engineer Research and Development Center. Vicksburg, MS. 175 pp. + append.
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APPENDIX A

Photographs of the Project Area



Photo 1. Canal No. 1 at Commission Road crossing.



Photo 2. Ephemeral ditch (Waters 2).



Photo 3. Pond (Waters 3) on Canal No. 1.
View of overflow.

A-1



Photo 4. Pond created by dam on Canal No. 1 (Waters 3).



Photo 5. Pond on Canal No. 1 (Waters 4) near boundary of Naval Reserve Base.

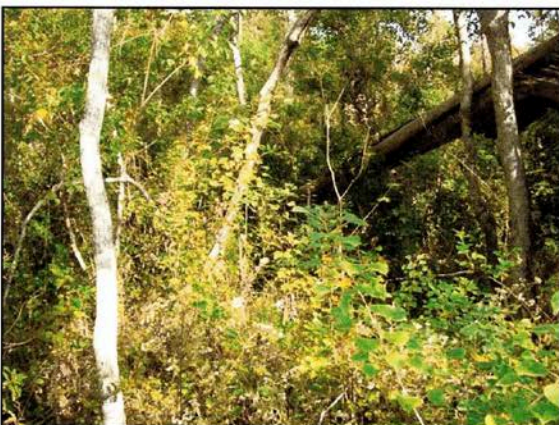


Photo 6. Sample Plot U1.

A-2



Photo 7. Palustrine Emergent/Palustrine Scrub-Shrub Wetland (Sample Plot A).



Photo 8. Palustrine Emergent Wetland (Sample Plot B).



Photo 9. Palustrine Emergent Wetland (Sample Plot C).

A-3



Photo 10. Palustrine Emergent Wetland
(Sample Plot D).



Photo 11. Palustrine Emergent Wetland
(Sample Plot E).



Photo 12. Ephemeral ditch (Waters 7).

A-4



Photo 13. Intermittent ditch (Waters 15).



Photo 14. Beaver dam in Canal No. 1.



Photo 15. Sample Plot U2.

A-5

APPENDIX B

Plant Species Observed

Species	Common Name	Growth Habit	Indicator Status
<i>Andropogon glomeratus</i>	bushy bluestem	H	FACW+
<i>Baccharis halimifolia</i>	eastern baccharis	H	FAC
<i>Betula nigra</i>	river birch	T/S	FACW
<i>Callicarpa americana</i>	American beautyberry	S	FACU-
<i>Campsis radicans</i>	trumpet creeper	V	FAC
<i>Carya illinoensis</i>	pecan	T/S	FAC+
<i>Carya texana</i>	black hickory	T/S	UPL
<i>Cyperus</i> spp	flatsedge	H	OBL
<i>Diospyros virginiana</i>	persimmon	T/S	FAC
<i>Eupatorium capillifolium</i>	dogfennel	H	FACU
<i>Fagus grandifolia</i>	American beech	T/S	FACU
<i>Gleditsia triacanthos</i>	honeylocust	T/S	FACW
<i>Impatiens capensis</i>	jewel weed	H	FAC-
<i>Juncus effusus</i>	common rush	H	FACW+
<i>Juniperus virginiana</i>	eastern redcedar	T/S	FACU-
<i>Liquidambar styraciflua</i>	sweetgum	T/S	FAC+
<i>Lonicera japonica</i>	Japanese honeysuckle	H	FACU
<i>Morus rubra</i>	red mulberry	T	FAC
<i>Paspalum notatum</i>	bahiagrass	H	FACU+
<i>Pinus echinata</i>	shortleaf pine	T	UPL
<i>Pinus taeda</i>	loblolly pine	T	FAC
<i>Platanus occidentalis</i>	American sycamore	T	FACW-
<i>Polygonum</i> spp	smartweed	H	OBL
<i>Populus deltoides</i>	eastern cottonwood	Y	FAC+
<i>Pueraria montana</i>	kudzu	V	NI
<i>Quercus alba</i>	white oak	T/S	UPL
<i>Quercus falcata</i>	southern red oak	T	FACU-
<i>Quercus nigra</i>	water oak	T/S	FAC
<i>Quercus phellos</i>	willow oak	T	FACW-
<i>Quercus stellata</i>	post oak	T	FACU
<i>Rubus</i> spp.	blackberry	S	FAC
<i>Rhus copallinum</i>	winged sumac	S	NI
<i>Sapium sebiferum</i>	Chinese tallow	S	FAC
<i>Saururus cernuus</i>	lizard's tail	H	OBL
<i>Salix nigra</i>	black willow	T	OBL
<i>Sassafras albidum</i>	sassafras	T/S	FACU
<i>Smilax rotundifolia</i>	greenbrier	H/V	FAC
<i>Solidago</i> spp.	goldenrod	S	FACU+
<i>Sorghum halepense</i>	Johnsongrass	H	FACU
<i>Taxodium distichum</i>	bald cypress	T	OBL
<i>Toxicodendron radicans</i>	poison ivy	V	FAC
<i>Ulmus alata</i>	winged elm	T/S	FACU+
<i>Ulmus americana</i>	American elm	T/S	FACW

APPENDIX C

Data Sheets

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Lona Beach Canal #1</u> Applicant/Owner: <u>Long Beach Water Management District</u> Investigator: <u>S. Smith, P. Netterville</u>	Date: <u>10-14-08</u> County: <u>Harrison</u> State: <u>MS</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>Pem/PSS</u> Transect ID: _____ Plot ID: <u>A</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Scirpus cyperinus</u>	<u>H</u>	<u>OBL</u>	9. <u>Magnolia virginiana</u>	<u>T</u>	<u>FACW +</u>
2. <u>Juncus effusus</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>Hypericum aristatum</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Solidago gigantea</u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Triadenum setiferum</u>	<u>H</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>Rhynchospora corniculata</u>	<u>H</u>	<u>OBL</u>	14. _____	_____	_____
7. <u>Rubus louisianus</u>	<u>H</u>	<u>FAC</u>	15. _____	_____	_____
8. <u>Cyrilla racemiflora</u>	<u>H</u>	<u>FACW</u>	16. _____	_____	_____

Photo #14

"Percent of Dominant Species that are OBL, FACW or FAC" 9/9 = 100%
(excluding FAC-).

Remarks:
Pem/PSS

HYDROLOGY

<p><u>Y</u> Recorded Data (Describe in Remarks):</p> <p>____ Stream, Lake, or Tide Gauge</p> <p><u>X</u> Aerial Photographs</p> <p>____ Other</p> <p>____ No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p><u>X</u> Saturated in Upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p><u>X</u> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>____ Oxidized Root Channels in Upper 12 Inches</p> <p><u>X</u> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>None</u> (in.)</p> <p>Depth to Free Water in Pit: <u>>16</u> (in.)</p> <p>Depth to Saturated Soil: <u>surface</u> (in.)</p>	
<p>Remarks:</p> <p><u>Two primary and one secondary indicators observed</u></p>	

SOILS

Plot A, Photo # 14

Map Unit Name (Series and Phase):		Bonzer & Smithton soils (Ps)		Drainage Class	very poorly drained
Taxonomy (Subgroup)		Terrie Medisaprists		Field Observations Confirm Mapped Type?	Yes No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/1	None	None	Sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks

low chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes No (Circle)	Is this Sampling Point Within a Wetland?	<input checked="" type="radio"/> Yes (Circle) No
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes No		
Hydric Soils Present?	<input checked="" type="radio"/> Yes No		

Remarks

All three criteria met -> Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Long Beach Canal #1</u> Applicant/Owner: <u>Long Beach Water Management District</u> Investigator: <u>S. Smith, E. Wetherill</u>	Date: <u>10-14-18</u> County: <u>Harrison</u> State: <u>MS</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>PEM</u> Transect ID: _____ Plot ID: <u>B</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Rhynchospora corniculata</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Juncus effusus</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>Polygonum hydropiperoides</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
4. <u>Hypericum cistifolium</u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Triadica sebifera</u>	<u>T</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>Cyrtia racemiflora</u>	<u>H</u>	<u>FACW</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-)

6/6 = 100%

Remarks:

PEM, connects to canal

HYDROLOGY

<input checked="" type="checkbox"/> Recorded Data (Describe in Remarks): _____ Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs _____ Other _____ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches _____ Water Marks _____ Drift Lines _____ Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): _____ Oxidized Root Channels in Upper 12 Inches _____ Water-Stained Leaves _____ Local Soil Survey Data _____ FAC-Neutral Test _____ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>Surface</u> (in.) Depth to Free Water in Pit: <u>Surface</u> (in.) Depth to Saturated Soil: <u>Surface</u> (in.)	

Remarks:

Three primary indicators observed

SOILS

Plot B, Photo # 15

Map Unit Name (Series and Phase):		<u>Atmore silt loam</u>		Drainage Class	<u>poorly drained</u>
Taxonomy (Subgroup)		<u>Plinthic Paleagults</u>		Field Observations Confirm Mapped Type?	Yes No

Profile Descriptions:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
<u>0-16</u>	<u>1</u>	<u>10YR 3/1</u>	<u>none</u>	<u>none</u>	<u>sandy loam</u>

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks

Low-chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes No (Circle)	Is this Sampling Point Within a Wetland?	<input checked="" type="radio"/> Yes No (Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes No		
Hydric Soils Present?	<input checked="" type="radio"/> Yes No		

Remarks

all three criteria met → Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Long Beach Canal #1</u> Applicant/Owner: <u>Long Beach Water Management District</u> Investigator: <u>S. Smith, E. Wettersville</u>	Date: <u>10-14-08</u> County: <u>Harrison</u> State: <u>MS</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>PEM</u> Transect ID: _____ Plot ID: <u>C</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Arundinaria gigantea</u>	<u>H</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Rhynchospora corniculata</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Hypericum cistifolium</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Scheuchzeria palustris</u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Sorghum halepense</u>	<u>H</u>	<u>FACW</u>	13. _____	_____	_____
6. <u>Dicranella acuminata</u>	<u>H</u>	<u>FAC</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Photo #16

"Percent of Dominant Species that are OBL, FACW or FAC" 4/6 = 66 2/3%
(excluding FAC-)

Remarks:
PEM on Powerline right-of-way

HYDROLOGY

<input checked="" type="checkbox"/> Recorded Data (Describe in Remarks): _____ Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs _____ Other _____ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: _____ Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches _____ Water Marks _____ Drift Lines _____ Sediment Deposits _____ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches _____ Water-Stained Leaves _____ Local Soil Survey Data _____ FAC-Neutral Test _____ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>none</u> (in.) Depth to Free Water in Pit: <u>> 16</u> (in.) Depth to Saturated Soil: <u>surface</u> (in.)	
Remarks: <u>One primary and secondary indicator observed</u>	

SOILS

Plot C, Photo #16

Map Unit Name (Series and Phase):		<u>Atmore silt loam (A+)</u>		Drainage Class	<u>poorly drained</u>
Taxonomy (Subgroup)		<u>Plinthic Paleaquults</u>		Field Observations Confirm Mapped Type?	Yes No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
<u>0-112</u>	<u>1</u>	<u>10YR 3/1</u>	<u>none</u>	<u>none</u>	<u>sandy loam</u>

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks

low chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes	No	(Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes	No	(Circle)
Hydric Soils Present?	<input checked="" type="radio"/> Yes	No	(Circle)

Is this Sampling Point Within a Wetland? ☒ Yes No

Remarks

all three criteria met -> Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Long Beach Canal #1</u> Applicant/Owner: <u>Long Beach Water Management District</u> Investigator: <u>S. Smith, E. Setteville</u>	Date: <u>10-14-08</u> County: <u>Harrison</u> State: <u>MS</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> <small>(If needed, explain on reverse.)</small>	Community ID: <u>P&M</u> Transect ID: _____ Plot ID: <u>D</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Hypericum cistifolium</u>	<u>H</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Schizanthium scoparium</u>	<u>H</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Magnolia virginiana</u>	<u>T</u>	<u>FACW+</u>	11. _____	_____	_____
4. <u>Quercus niata</u>	<u>T</u>	<u>FAC</u>	12. _____	_____	_____
5. <u>Solidago altissima</u>	<u>H</u>	<u>FACW+</u>	13. _____	_____	_____
6. <u>Euphorbia corollata</u>	<u>H</u>	<u>FACW</u>	14. _____	_____	_____
7. <u>Dichanthium acuminatum</u>	<u>H</u>	<u>FAC</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" 41 = 57%
(excluding FAC-).

Remarks:
P&M on a powerline right-of-way near electric substation

HYDROLOGY

<input checked="" type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>none</u> (in.) Depth to Free Water in Pit: <u>> 16</u> (in.) Depth to Saturated Soil: <u>surface</u> (in.)	Remarks: <u>One primary indicator observed</u>

SOILS

Plot D, Photo #18

Map Unit Name (Series and Phase):		<u>Ponzer & Smithton Soils (PS)</u>		Drainage Class	<u>very poorly drained</u>
Taxonomy (Subgroup)		<u>Terric Medisaprists</u>		Field Observations Confirm Mapped Type?	Yes No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
<u>0-1</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>organic/sand</u>
<u>1-116</u>	<u>2</u>	<u>10YR 3/1</u>	<u>none</u>	<u>none</u>	<u>sandy loam</u>

Hydric Soil Indicators:

<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
--	--

Remarks

low chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	(Circle)	
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	(Circle)	
Hydric Soils Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	(Circle)	Is this Sampling Point Within a Wetland?
				<input checked="" type="radio"/> Yes <input type="radio"/> No

Remarks

all three criteria met -> Jurisdictional

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Long Beach Canal No. 1</u> Applicant/Owner: <u>Long Beach Water Management District</u> Investigator: <u>S. Smith & E. Netterville</u>	Date: <u>4/22/09</u> County: <u>Harrison</u> State: <u>MS</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input type="radio"/> <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>PEM</u> Transect ID: _____ Plot ID: <u>E</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Juncus effusus</u>	<u>H</u>	<u>FACW+</u>	9. _____	_____	_____
2. <u>Rubus laurigenus</u>	<u>H</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>Sagittaria arifolia</u>	<u>S</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Acer rubrum</u>	<u>S</u>	<u>FAC</u>	12. _____	_____	_____
5. <u>Solidago gigantea</u>	<u>H</u>	<u>FACW</u>	13. _____	_____	_____
6. <u>Lonicera japonica</u>	<u>H</u>	<u>FACW</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 5/6 = 83%

Remarks:
Maintained Power line ROW

HYDROLOGY

<input checked="" type="checkbox"/> Recorded Data (Describe in Remarks): _____ Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs _____ Other _____ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: _____ Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches _____ Water Marks _____ Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): _____ Oxidized Root Channels in Upper 12 Inches _____ Water-Stained Leaves _____ Local Soil Survey Data _____ FAC-Neutral Test _____ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>None</u> (in.) Depth to Free Water in Pit: <u>12</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks: <u>Fringe wetland near lake</u>

SOILS

Plot E

Map Unit Name (Series and Phase): <u>Ponzer & Smithton soils (Ps)</u>				Drainage Class: <u>Very poorly drained</u>	
Taxonomy (Subgroup): <u>Terric Medisaprists</u>				Field Observations Confirm Mapped Type? Yes No	
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4	1	N/A	—	—	organic
4-16	2	5Y6/1	5YR4/6	Common/large	sand
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Concretions <input checked="" type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input checked="" type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)		
Remarks: <u>Two primary indicators observed</u>					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes (Circle)	(Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes	No
Hydric Soils Present?	<input checked="" type="radio"/> Yes	No
Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes No		
Remarks: <u>All three criteria met → Jurisdictional</u>		

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Long beach Canal #1</u> Applicant/Owner: <u>Long beach Water Management District</u> Investigator: <u>S. Smith, E. Netherville</u>	Date: <u>10-14-08</u> County: <u>Harrison</u> State: <u>MS</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>UPL</u> Transect ID: _____ Plot ID: <u>U1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Triadica sebifera</u>	<u>H/S</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Acer rubrum</u>	<u>S</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>Morella cerifera</u>	<u>S</u>	<u>FAC+</u>	11. _____	_____	_____
4. <u>Rubus louisianus</u>	<u>H</u>	<u>FAC</u>	12. _____	_____	_____
5. <u>Quercus nigra</u>	<u>T/S</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>Baccharis halimifolia</u>	<u>H</u>	<u>FAC</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Photo #11

"Percent of Dominant Species that are OBL, FACW or FAC" 6/6 = 100%
(excluding FAC+).

Remarks:
Upland area dominated by C. tallow

HYDROLOGY

<input checked="" type="checkbox"/> Recorded Data (Describe in Remarks): _____ Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs _____ Other _____ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: _____ Inundated _____ Saturated in Upper 12 Inches _____ Water Marks _____ Drift Lines _____ Sediment Deposits _____ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): _____ Oxidized Root Channels in Upper 12 Inches _____ Water-Stained Leaves _____ Local Soil Survey Data _____ FAC-Neutral Test _____ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>None</u> (in.) Depth to Free Water in Pit: <u>>16</u> (in.) Depth to Saturated Soil: <u>>16</u> (in.)	
Remarks: <u>No indicators observed</u>	

SOILS

Plot: U1, Photo #11

Map Unit Name (Series and Phase):		<u>Atmore silt loam (A+)</u>		Drainage Class	<u>poorly drained</u>
Taxonomy (Subgroup)		<u>Plinthic Paleaquults</u>		Field Observations Confirm Mapped Type?	Yes No

Profile Descriptions:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
<u>0-16</u>	<u>1</u>	<u>10YR 5/1</u>	<u>None</u>	<u>None</u>	<u>silt loam</u>

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks

Low-chroma colors observed

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)		
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Remarks			
<u>All three criteria not met → Non-Jurisdictional</u>			

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Long Beach Canal #1</u> Applicant/Owner: <u>Long Beach Water Management District</u> Investigator: <u>S. Smith, E. McHerville</u>	Date: <u>10-16-08</u> County: <u>Harrison</u> State: <u>MS</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>UPL</u> Transect ID: _____ Plot ID: <u>U8</u>

VEGETATION

Photo # 40

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Schizanthus scapularis</u>	<u>H</u>	<u>FACU</u>	9. _____	_____	_____
2. <u>Hypericum cistifolium</u>	<u>H</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Solidago altissima</u>	<u>H</u>	<u>FACU+</u>	11. _____	_____	_____
4. <u>Cynodon dactylon</u>	<u>H</u>	<u>FACU</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" 1/4 = 25%
(excluding FAC-).

Remarks:
Pasture on powerline right-of-way

HYDROLOGY

<input checked="" type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>none</u> (in.) Depth to Free Water in Pit: <u>>16</u> (in.) Depth to Saturated Soil: <u>>16</u> (in.)	Remarks: <u>No indicators observed</u>

SOILS

Plot U2, Photo #40

Map Unit Name (Series and Phase):		<u>Plummer loamy sand (Pm)</u>		Drainage Class	<u>poorly drained</u>
Taxonomy (Subgroup)		<u>Grossarenic Paleudults</u>		Field Observations Confirm Mapped Type?	Yes No

Profile Descriptions:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
<u>0-16</u>	<u>1</u>	<u>10YR 5/2</u>	<u>none</u>	<u>none</u>	<u>sand</u>

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks
<u>low chroma colors observed</u>

WETLAND DETERMINATION

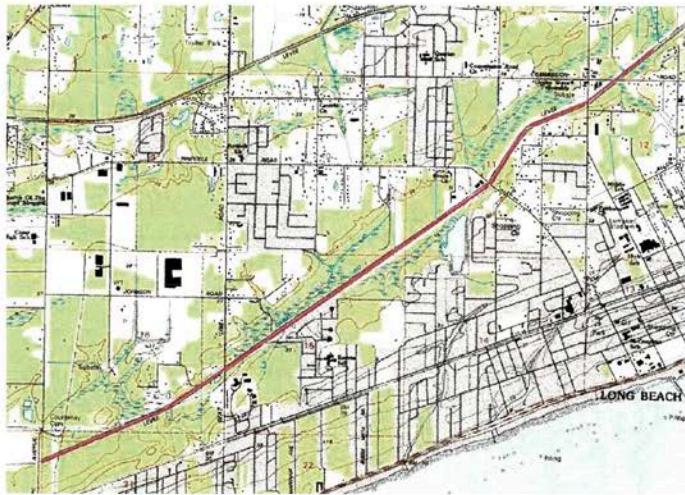
Hydrophytic Vegetation Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	Is this Sampling Point Within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)		Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Hydric Soils Present?	Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle)		Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Remarks			
<u>all three criteria not met → Non-jurisdictional</u>			

Approved by HQUSACE 3/92

Phase I Cultural Resources Survey



**PHASE I CULTURAL RESOURCES SURVEY FOR CANAL
NO. 1 CHANNEL MODIFICATIONS, LONG BEACH WATER
MANAGEMENT DISTRICT, HARRISON COUNTY,
MISSISSIPPI**



December 2008

EARTH SEARCH, INC.
P.O. Box 770336
New Orleans, LA 70177-0336

Submitted to

Neel-Schaffer, Inc.
800 Jackson Avenue, Suite C
Mandeville, LA 70448

**PHASE I CULTURAL RESOURCES SURVEY FOR
CANAL NO. 1 CHANNEL MODIFICATIONS,
LONG BEACH WATER MANAGEMENT DISTRICT,
HARRISON COUNTY, MISSISSIPPI**

By

Jason Kennedy, Jeanne Marquez, and Rhonda L. Smith

Submitted by

A handwritten signature in black ink, reading "Jill-Karen Yakubik". The signature is fluid and cursive, with the first name "Jill" and last name "Yakubik" clearly legible.

Jill-Karen Yakubik, Ph.D., RPA
Principal Investigator

Earth Search, Inc.
P.O. Box 770336
New Orleans, LA 70177-0336

Prepared for

Neel-Schaffer, Inc.
800 Jackson Avenue, Suite B
Mandeville, LA 70448

December 2008

ABSTRACT

Earth Search, Inc. (ESI), undertook a Phase I survey and cultural resources assessment for the proposed modifications to Canal No. 1, Long Beach, Harrison County, Mississippi, for Neel-Schaffer, Inc. Field investigations included pedestrian survey, judgmental shovel testing, and an architectural survey. The work was necessary as part of a supplemental Environmental Impact Statement (EIS). For the purposes of the archaeological survey the Area of Potential Effects (APE) consists of a 30 meter (m) (98.4 foot [ft]) area paralleling either side of the canal. The project area includes approximately 100.5 acres (A) (40.7 hectares [ha]). Shovel testing and pedestrian survey did not reveal any artifacts or culture-bearing strata in the project area. There is no evidence of archaeological deposits in the area. For the purposes of the architectural survey the APE includes a 400 m (0.25 mile [mi]) buffer of the canal totaling approximately 670.2 A (272 ha). The standing structure survey recorded one cemetery greater than 50 years of age within the APE. The National Register of Historic Places (NRHP) eligibility of the cemetery is undetermined. Proposed channel modifications will have no impact on the cemetery. The proposed modifications will have no affect on historic resources. No additional cultural resources investigations are recommended.

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CHAPTER 1 INTRODUCTION

On October 15-17, 2008, Earth Search, Inc. (ESI), performed a Phase I survey and cultural resources management assessment for the proposed channel modifications to Canal No. 1, Long Beach Water District, Harrison County, Mississippi. The work was undertaken for Neel-Schaffer, Inc., as part of a supplemental Environmental Impact Statement (EIS). Both an archaeological and an architectural survey were performed. Prior to the commencement of fieldwork, a comprehensive literature search and records review was performed. Background research included examination of records on file at the Mississippi Department of Archives and History (MDAH), Jackson, Mississippi. Cultural resources reports, site files, and National Register of Historic Places (NRHP) records were reviewed for the project area. Also, previously recorded standing structures were reviewed. Geomorphological data, maps, and aerial photographs were examined and reviewed. Historical research included a review of available secondary documentation such as local and regional historic archives and records. This report provides the results of the background research and field investigations.

Project Area Description

The project area includes that part of Canal No. 1 that extends approximately 4.2 miles (mi) (6.8 kilometers [km]) eastward from Espy Avenue to just northeast of the intersection of Commission and Klondyke roads (Figure 1). For the purposes of the archaeological survey, the Area of Potential Effect (APE) was restricted to an area lying 30 meters (m) (98.4 feet [ft]) from each side of the canal and parallel to it. This includes approximately 100.5 acres (A) (40.7 hectares [ha]). For the purposes of the architectural survey, the APE includes a 400 m (0.25 mile [mi]) buffer of the canal totaling approximately 670.2 A (272 ha).

Report Organization

Chapter 2 presents previous investigations undertaken in the vicinity of the project area. Chapter 3 details the methodology and results of the field investigations. Chapter 4 provides ESI's conclusions and recommendations.

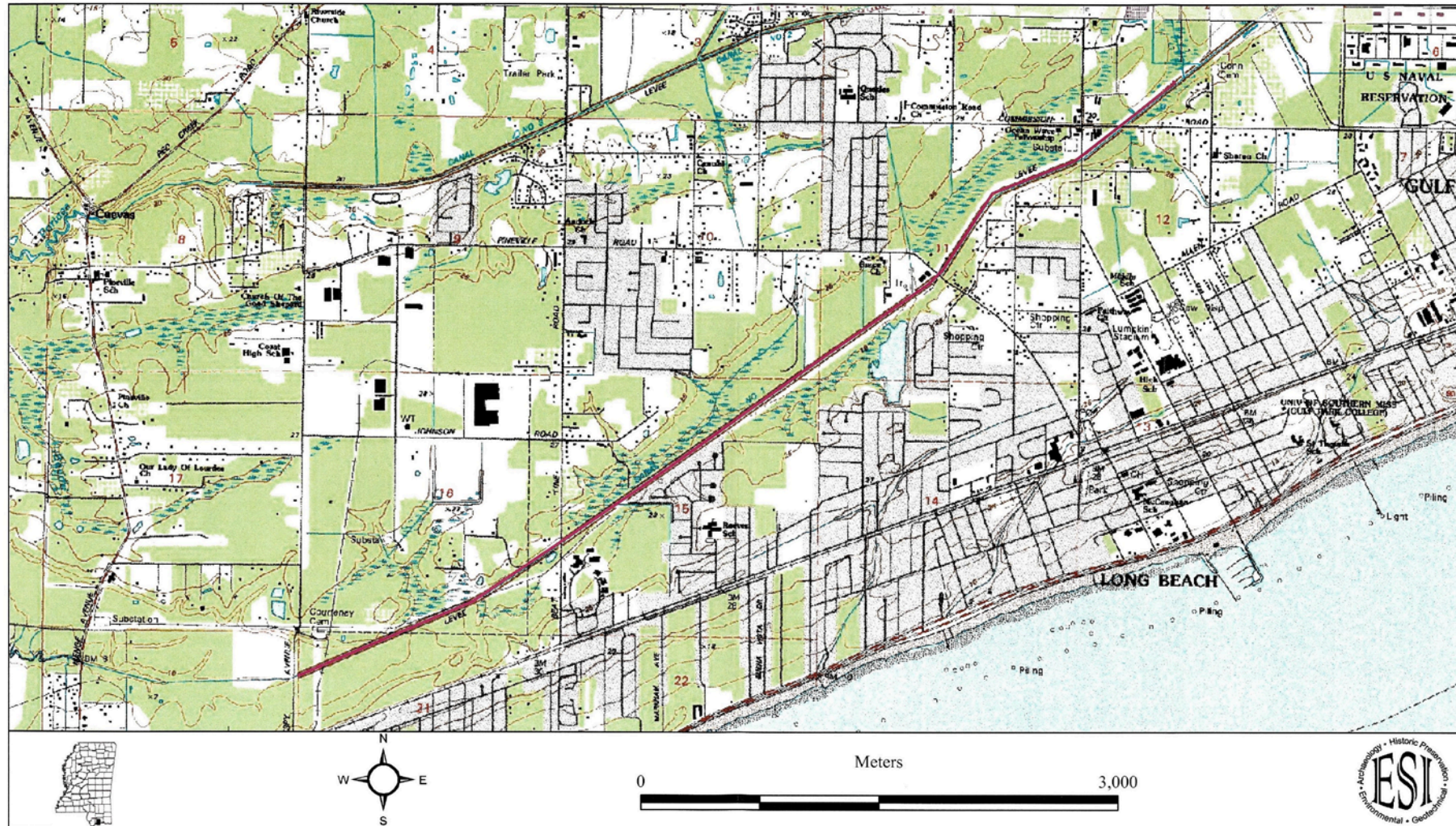


Figure 1. Excerpts from the USGS Pass Christian and Gulfport NW, MS 1:24,000 topographic quadrangles showing the project area, in pink.

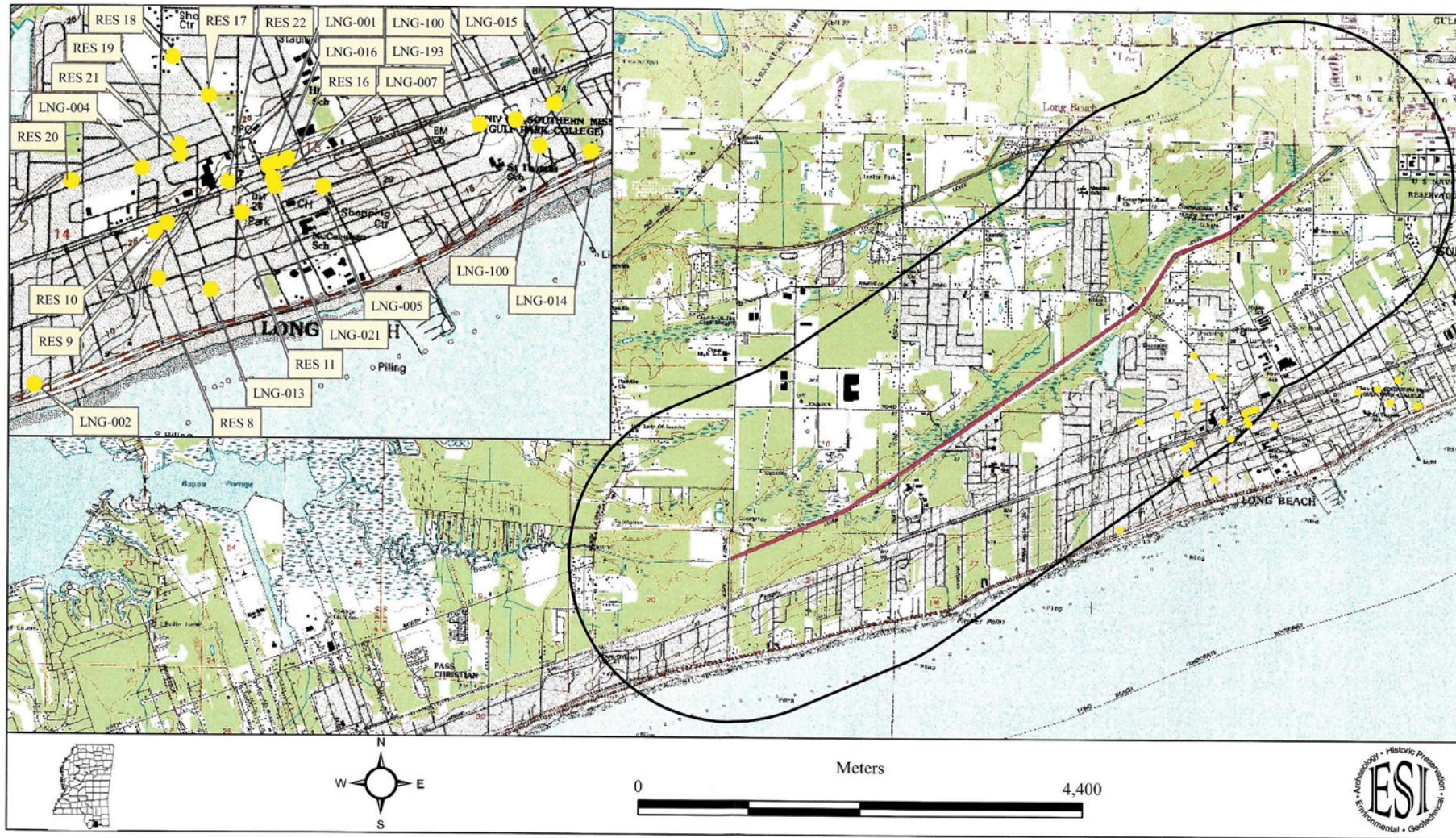


Figure 2. Excerpts from the USGS Vidalia, Bay Saint Louis, Pass Christian, Gulfport S, Gulfport N, and Gulfport NW, MS 1:24,000 topographic quadrangles showing the project area, a one-mile buffer, and the locations of historic standing structures within approximately one-mile of the project area.

CHAPTER 2 PREVIOUS INVESTIGATIONS

Research at the MDAH, Jackson, revealed that 13 previous cultural resources surveys have been undertaken within one mile (1.6 km) of Canal No. 1. Also, one archaeological site and numerous standing structures greater than 50 years of age have been previously recorded within the buffer area. The previous investigations are summarized below. Table 1 at the end of this chapter lists the previously recorded structures. Four of the reports were not available at that time that the research was undertaken: Lauro 1988, Stowe and Stowe 2001a, Lauro 2007, and Lauro 2008a.

Mann 1993

On September 26, 1993, Cyril B. Mann Jr. conducted a survey for a proposed condominium in Harrison County, Mississippi. Pedestrian survey was conducted with shovel tests excavated at 20-m (65.62 ft) intervals over the 21 A (8.49 ha) tract of land. No cultural resources were identified during the course of this survey (Mann 1993).

Mann 1994a

On March 31 and April 1, 1994, Mann conducted a survey for a proposed construction site in Harrison County, Mississippi. The project area was a 20.15 A (8.15 ha) tract of land just to the north of U.S. 90. Pedestrian survey was conducted with shovel tests excavated at 25-m (82.02 ft) intervals. No cultural resources were identified during the course of this survey (Mann 1994a).

Mann 1994b

On June 15, 1994, Mann conducted a survey for Lewis and Mitchell, Inc., of a proposed site for in the Long Beach Industrial Park in Harrison County, Mississippi. The project area was a 150 A (3.56 ha) tract of land just to the east of Johnson Bayou. Pedestrian survey was performed with shovel tests excavated at 25-m (82.02 ft) intervals. No cultural resources were identified during the course of this survey (Mann 1994b).

Mann 1995

In August 1995, Mann conducted a survey for a proposed construction site in Harrison County, Mississippi. Pedestrian survey was conducted with shovel tests excavated at 25-m (82.02 ft) intervals over the 150 A (60.69 ha) project area. No cultural resources were identified during the course of this survey (Mann 1995).

Lauro 2000

In December 2000, James Lauro conducted a cultural resources survey in Harrison County, Mississippi. The project area was approximately 18 A (7.27 ha). Fieldwork included pedestrian survey and shovel testing at 20 meter-m (65.62 ft) intervals. One early- to mid-twentieth century site was identified during survey; however, it was not assigned a site number by MDAH. No other cultural resources were recorded as a result of this survey (Lauro 2000).

Stowe and Stowe 2001b

On August 29, 2001, Noel and Rebecca Stowe conducted a cultural resources survey of a 12 A (4.85 ha) proposed development in Long Beach, Harrison County, Mississippi. The project

area was pedestrian surveyed with judgmental shovel tests excavated in high probability areas. Two structures were noted in the report but neither was stated as being greater than 50 years of age. No other cultural resources were identified (Stowe and Stowe 2001b).

Banguilan et al. 2007

In February 2007, FEMA conducted a Phase I survey for the Long Beach School District for the proposed construction of a new Harper McCaughan Elementary School because the original school was damaged beyond repair by Hurricane Katrina. The proposed project area consisted of 85.71 A (34.63 ha) on Commission Road. One site, 22HR973, was recorded during the course of fieldwork. It is believed to have been the historic location for the Hahn Brothers Nursery as historic artifacts consistent with the operation of a nursery and cement piers were located at the site. Site 22HR973 was considered ineligible for nomination to the NRHP. No other cultural resources were identified as a result of this survey (Banguilan et al. 2007).

Lauro 2008b

In February 2008, Lauro conducted a cultural resources survey for Waggoner Engineering in Harrison County, Mississippi. The project area was approximately 38 A (15.35 ha) and was pedestrian surveyed with judgmental shovel testing. No cultural resources were identified as a result of this survey (Lauro 2008b).

Lauro 2008c

In late April and early May 2008, Lauro conducted a cultural resources survey for Waggoner Engineering in Harrison County, Mississippi. The approximately 27 A (10.93 ha) project area was pedestrian surveyed and shovel tested. No cultural resources were identified as a result of this survey (Lauro 2008c).

Standing Structures

There have been 29 structures greater than 50 years of age recorded within one mile (1.6 km) of the project area (Table 1 and Figure 2). Of those, one is listed on the NRHP, three are considered eligible for nomination to the NRHP, and six are potentially eligible for nomination. A portion of the Scenic Drive Historic District, a National Register Historic District (NRHD), is also within the one mile buffer and along the Pass Christian gulf shore. All of the structures are located in and around the community of Long Beach.

Table 1. Previously Recorded Standing Structures Greater Than 50 Years of Age.

State #	Property Name	Street Address	Date	Use	Form	Style	NRHP Status
047-LNG-001	Greenvale; W. J. Quarles Homeplace	122 E. Railroad Ave.	1884	vacant	2 Story Cottage	Victorian	listed
047-LNG-002	Boggsdale	632-36 W. Beach Blvd.	c. 1865	N/A	N/A	N/A	potentially eligible
047-LNG-004	Watts House	107 W. 4th Ave.	c.1890	res	N/A	N/A	potentially eligible
047-LNG-005	McGinnis-Wharton Hall; Long Beach Presbyterian Church	200 Second St.	1936	rel	Cottage	Minimal	ineligible
047-LNG-007	Hancock County Bank Building; Southern Star Lodge	126 Jeff Davis Ave.	1926	lodge	Freestanding Commercial	Classical Revival	ineligible
047-LNG-013	Rev. William T. Griffin House	426 Russell Ave.	1908	res	2 Story Central Hall	Greek Revival	potentially eligible
047-LNG-014	Oakhaven	822 E. Beach Blvd.	c. 1900	res	Queen Anne Cottage	Victorian	potentially eligible
047-LNG-015		134 Beach Park Pl.	1930	res	N/A	N/A	eligible
047-LNG-016		Next to 122 E. Railroad Ave.	c. 1850	res	Farm House	N/A	N/A
047-LNG-021	Long Beach City Hall	201 Jeff Davis Ave.	N/A	N/A	N/A	N/A	N/A
047-LNG-100	Gulf Park Campus, University of Mississippi	Gulf Park College	1900-1956	ed	Multiple	Multiple	N/A
047-LNG-101	Administration Building, Gulf Park Campus, University of Mississippi	N/A	N/A	N/A	N/A	N/A	N/A
047-LNG-103	Lloyd Hall, Gulf Park Campus, University of Mississippi	N/A	N/A	N/A	N/A	N/A	N/A
Resource #8		426 Magnolia St.	c. 1920	res	N/A	N/A	ineligible
Resource #9		109 Girard St.	c. 1925	res	N/A	N/A	ineligible
Resource #10	Long Beach Cemetery	Girard St. & W. 1st St.	late 19th C	cem	Brick-masonry tombs & stone headstones	N/A	ineligible
Resource #11		Pine St. W. of Church St.	c. 1935	res	N/A	Craftsman	ineligible
Resource #16	H. Y. Quarles House	124 E. Railroad St.	c. 1907	res	N/A	N/A	potentially eligible
Resource #17		19050 Pineville Rd.	c. 1930	res	N/A	Craftsman	ineligible
Resource #18		Pineville Rd., opposite Park Lane	c. 1925	res	N/A	Craftsman	ineligible
Resource #19		307 W. Old Pass Rd.	c. 1900	res	L-shape	N/A	N/A
Resource #20		620 W. Old Pass Rd.	c. 1905	res	Front-gable	N/A	N/A
Resource #21	Mt. Pilgrim Missionary Baptist Church	306 w. old Pass Rd.	1938	ecc	N/A	N/A	N/A
Resource #22		220 Railroad St.	c. 1905	res	N/A	Craftsman	N/A

CHAPTER 3 FIELD INVESTIGATIONS

Archaeological Survey

Methods. Field investigations in the project area consisted of pedestrian survey and judgmental shovel testing. Two transects, one on either side of the canal, were surveyed. These transects were located within 30 m (98.4 ft) of the canal bankline. Shovel testing was restricted to high probability areas defined on the basis of the local geomorphology. Shovel tests measured 30 centimeters (cm) (12 inches [in]) in diameter and were excavated to a maximum depth of 50 cm below surface (cmbs) (20 inbs). Excavated soils were screened through 0.25 in (6.4 mm) mesh. The stratigraphic associations in each shovel test were recorded using standard nomenclature. Shovel tests were backfilled upon conclusion.

Results. Along 50-70 percent of the canal, unimproved roads and cleared residential properties parallel the canal alignment and provided excellent ground visibility for the pedestrian survey. Although modern debris (e.g. bottles, cans, etc.) was scattered lightly throughout the area, no artifacts were noted during the pedestrian survey. Shovel tests in the high probability areas revealed two strata (Figure 3). Stratum I is a mixed 10YR 3/2 (very dark grayish brown) and 10YR 7/1 (light gray) sand (0-35 cmbs [0-13.8 inbs]). Stratum II is a 10YR 7/1 (light gray) sand (35-50 cmbs [13.8-20 inbs]). All shovel tests were negative. Also, there is no evidence of culture-bearing strata in the project area.

Architectural Survey

For the purposes of the architectural survey an APE of 400 m (0.25 mi) was established (200 m [0.125 mi] to either side of the centerline). Within the APE, all standing structures greater than 50 years of age were recorded utilizing MDAH Historic Resource Inventory forms. Photographs were taken using a Nikon digital camera. A single cultural resource, a historic/modern cemetery was recorded in the APE (Figure 4). The Resource Inventory form for this property is included in Appendix A.

Courtenay Cemetery. This unmarked cemetery is approximately 100 m (328.1 ft) due east of Espy Avenue with no apparent entrance (Figure 5). The roughly square-shaped parcel is accessed via an easy-to-miss, unmarked gravel lane. There is no gateway or other type of formal entrance. The cemetery seems completely unplanned, with markers randomly placed and no drives or site features other than shade trees. There are approximately 50 marked burials, but the names are indiscernible on some. All but one burial is below ground. It is apparent by the style of construction that the single, above-ground, brick-masonry tomb is the oldest in the cemetery, however, it has no visible date (Figure 6). The only other high-style marker is a granite obelisk (Figure 7). Of the remaining modern headstones, the majority are the more mainstream, granite markers while there are several simple, folk-style markers of poured concrete or those covered in tile (Figures 8 and 9). The cemetery evolved in a few phases. The earliest burial is dated 1892 while the majority came in three waves between 1950 and 1980 (Figure 10). This nearly hidden cemetery lies at the very edge of the 0.125 mi buffer, therefore, channel modifications will have no effect on the property.

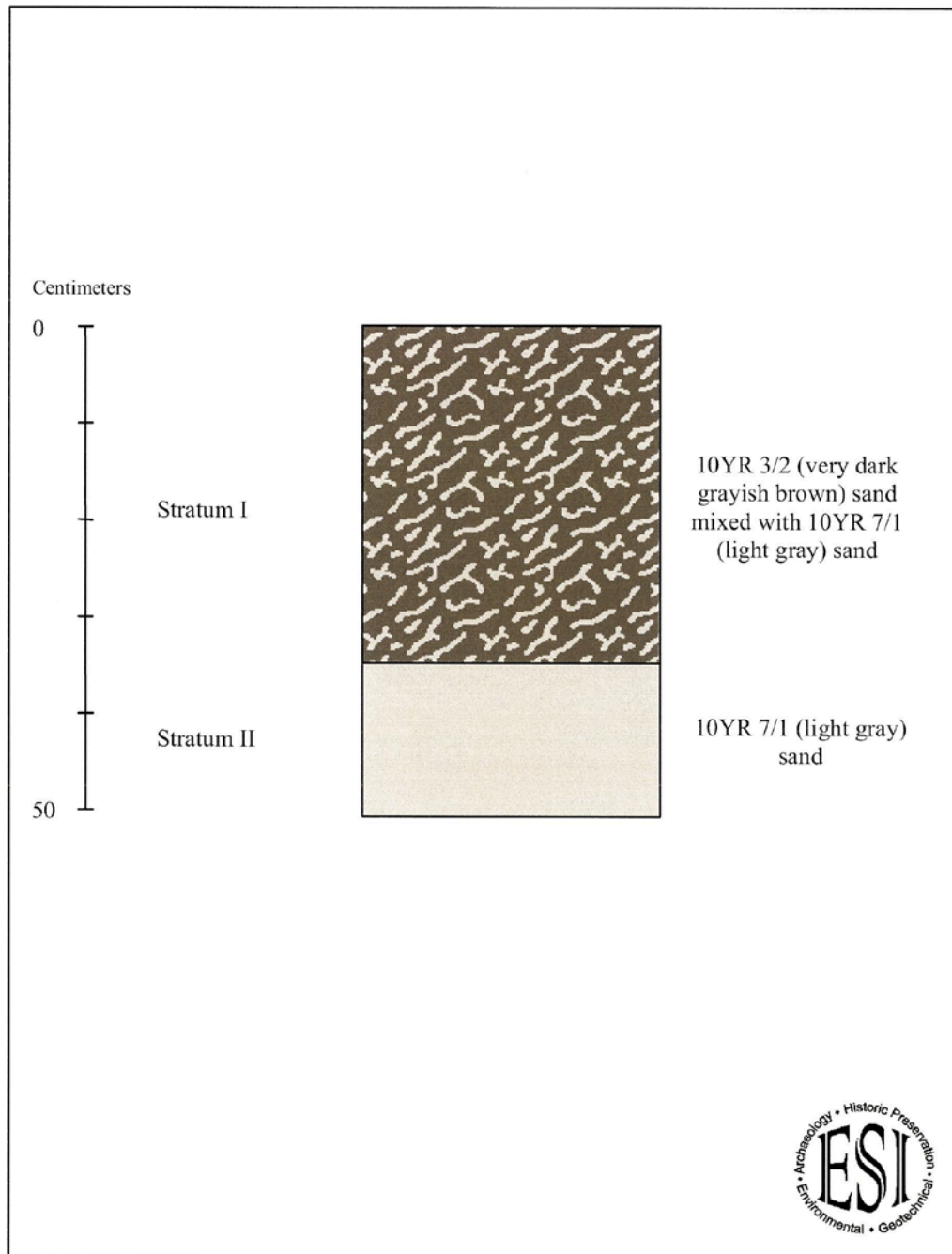


Figure 3. Typical shovel test profile.

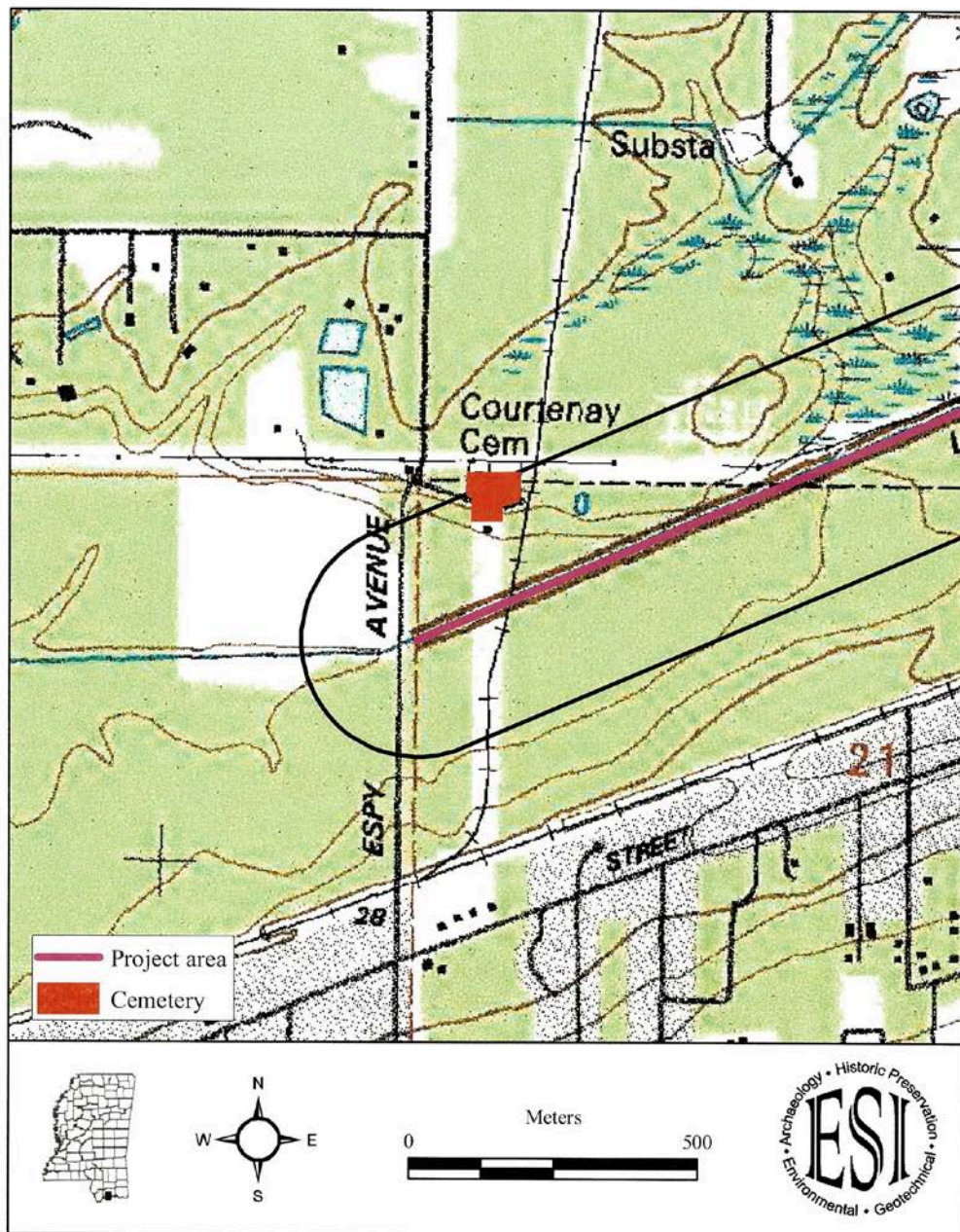


Figure 4. Excerpts from the USGS *Pass Christian* and *Gulfport NW, MS* 1:24,000 topographic quadrangles showing the location of Courtenay Cemetery in relation to the project area.



Figure 5. Landscape of Courtanay Cemetery.



Figure 6. Above-ground tomb (Reach's family vault).

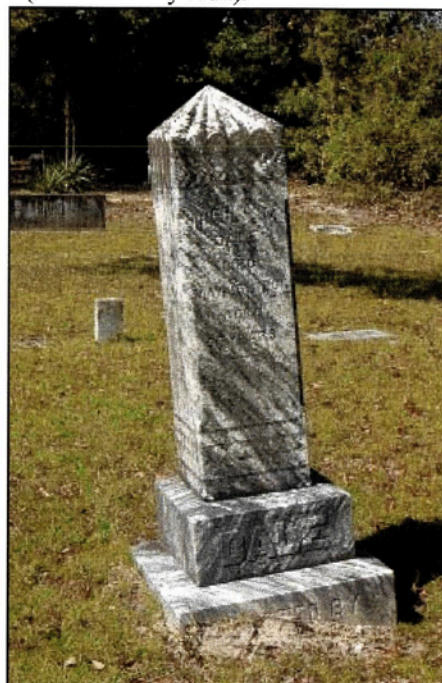


Figure 7. Photo of granite.



Figure 8. Folk grave marker.



Figure 9. Folk grave markers.



Figure 10. Photo of earliest grave marker.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

ESI conducted a Phase I survey and cultural resources assessment of the Canal No. 1 project area in Long Beach, Mississippi. The work was performed for Neel-Schaffer, Inc., as part of a supplemental EIS for proposed channel modification. Pedestrian survey and shovel testing throughout the project area did not result in the recordation of any new archaeological sites. The architecture survey identified one historic/modern cemetery within 0.25 mi (400 m) of the project area. Proposed modifications including channel widening and spoil deposition will have no affect on Courtenay Cemetery. It is ESI's opinion that planned modifications to Canal No. 1 will have no affect on historic resources. No additional cultural resources investigations are recommended.

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March 10, 2009

Mr. Brett Mallette
Long Beach Water Management District
P.O. Drawer W
Gulfport, Mississippi 39502

RE: Phase I Cultural Resource Survey for Canal No. 1 Channel Modifications, Long Beach Water Management District, MDAH Project Log #02-121-09, Harrison County


Dear Mr. Mallette:

We have reviewed the December 2008 cultural resources survey report by Dr. Jill-Karen Yakubik, Principal Investigator, received on February 18, 2009, for the above referenced undertaking, pursuant to our responsibilities under Section 106 of the National Historic Preservation Act and 36 CFR Part 800. After review, we concur that no archaeological resources listed in or eligible for listing in the National Register of Historic Places are likely to be affected. Also, while it is our determination that the Courtenay Cemetery is potentially eligible for listing in the NRHP under Criterion A (for its vernacular markers), we concur that the project will have no effect on this resource. Therefore, we have no objection with the proposed undertaking.

There remains the possibility that unrecorded cultural resources may be encountered during the project. Should this occur, we would appreciate your contacting this office immediately in order that we may offer appropriate comments under 36 CFR 800.13.

Please provide a copy of this letter to Ms. Yakubik. If you need further information, please let us know.

Sincerely,


Jim Woodrick
Review and Compliance Officer

FOR: H.T. Holmes
State Historic Preservation Officer

c: Clearinghouse for Federal Programs

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